



# United States Patent and Trademark Office

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER
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ART UNIT	PAPER NUMBER
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DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

09/436,158

PEREZ ET AL.

Examiner

Art Unit

Nathan Ha

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 November 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 13-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of
- 1 ☐ Certified copies of the priority documents have been received.
- 2 ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- 3 ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for further information.

## Attachment(s)

15 ☒ Notice of References Cited (PTO Form 15)

16 ☐ Notice of Substantive Examination (PTO Form 16)

17 ☐ Notice of Appeal (PTO Form 17)

18 ☐ Notice of Opposition (PTO Form 18)

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims ~~1~~14, 17-18, and 20-33 are rejected under 35 U.S.C. 102(a) as being anticipated by Okumura et al. (US. 6,130,115)

In regards to claims 13, 21, 22, 23figs. 1-4, Okumura et al. discloses a semiconductor package comprising a metal lead frame, fig. 1b for example, including a plurality of leads 13 and 16 arrayed around a central region thereof; each lead having an outer end extending away from the central region and an inner end extending toward the central region;

a locking pad 16 in an outer portion of each lead adjacent to outer end, see details in fig. 7b;

a wire bonding pad, also portion of member 16, in an inner portion of each lead adjacent to its inner end, see also fig. 7b; and,

a die pad 11 attached to the lead frame in the central region thereof and adjacent to the inner ends of the leads the die pad 11 having an upper surface

and a recessed shoulder extending around the central portion

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In regards to claim 14, the die pad is attached to the frame or to at least one of the leads by at least one tie-bar 10, see fig. 7c, see also, col. 6, second paragraph.

In regards to claim 17, the lands 16 are rectangular, see fig. 7b.

In regards to claims 18, 24, in fig 7, Okumura further discloses a semiconductor die 12 attached to the upper surface of the die pad 11;

a plurality of conductive wires 14 bonded at opposite ends to pad on a top surface of the die and selected ones of the bonding pads on the leads; and,

a body insulative plastic molded over the die 12, die pad 11, and the leads 13 such that the plastic body surrounds the locking pads, the bonding pads, and the recessed shoulder on the lower surface of the die pad and interlocks with them, see fig. 7b, also, col. 16 second paragraph.

In regards to claim 20, see col. 16, second paragraph.

In regards to claim 25, see fig. 7b.

In regards to claims 26 and 33, Okumura et al. further discloses a recessed shoulder at the lower surface of the die pad 11 such that a central portion of the lower surface inside the shoulder is exposed through a lower surface of the plastic body. see figs. 7a and 7b

In regards to claim 27, see figs. 7.

In regards to claims 28-29, and 32, Okumura et al. further teaches a way for resisting penetration of moisture into the package see col 8 last paragraph

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***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made

4. Claims 15-16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al. as applied to claim 13 above, and further in view of Yagi et al. (US. 6,025,640)

In regards to claim 19, Okumura et al. discloses all of the claimed limitation as mentioned above except the leadframe having an alloy of copper, or iron alloy containing nickel. Yagi et al., however, teaches the leadframe 31 having an alloy of copper, or iron alloy containing nickel, see col. 10, lines 8-25.

Therefore, it would have obvious to one of ordinary skill in the art at the time of the invention was made to use such materials as shown above by Yagi et al. in Okumura et al. since these metals have higher conductivity

In regards to claims 15-16, the width and the pitch of the leads and the pad as claimed are not patentable features since one of ordinary skill in the art would modify these measurements in the device to meet the design criteria.

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Ha whose telephone number is (703) 305-3507. The examiner can normally be reached on M-F 9:00-5:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and 308-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Nathan Ha  
April 12, 2001



OLIK CHAUDHURI

Supervisor  
Art Unit 2814